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IS 13898 (1993): Dimensions of Coil Formers of Transformers, Inductors for use in Telecommunication and electronic equipment [LITD 5: Semiconductor and Other Electronic Components and Devices]



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IS 13898 : 1993
(Reaffirmed 2003)

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Indian Standard

**DIMENSIONS OF COIL FORMERS OF
TRANSFORMERS AND INDUCTORS FOR USE
IN TELECOMMUNICATION AND ELECTRONIC
EQUIPMENT**

UDC 621-318.4 : 621-39

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Transformers and Inductors for Electronic Equipment Sectional Committee had been approved by the Electronic and Telecommunication Division Council.

This Indian Standard is based on IEC Document 51 (Sec) 238 'Specification for the dimensions of coil formers of transformers and inductors for use in telecommunication and electronic equipment', circulated by International Electrotechnical Commission (IEC).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

DIMENSIONS OF COIL FORMERS OF TRANSFORMERS AND INDUCTORS FOR USE IN TELECOMMUNICATION AND ELECTRONIC EQUIPMENT

1 SCOPE

1.1 This standard specifies the essential dimensions of coil-formers of transformers and inductors, using a square stack of laminations inserted in the bobbin, for the lamination shapes specified below.

NOTE — The essential dimensions are those permitting interchangeability in respect of conformance with core sizes and outline dimensions of the completed component.

2 REFERENCES

2.1 The Indian Standards mentioned in Annex A are necessary adjuncts to this standard.

3 LAMINATIONS

3.1 For the purpose of this specification, the laminations shall conform with the dimensions of Type YE1-Range 1, YEx-Range 2, YUI-Range 1 and YM-Range 1, as prescribed in IS 11794 series of standards.

4 GENERAL REQUIREMENTS

4.1 Bobbin Dimensions Corresponding to the Core Stack Height

In the associated IS 11455 series of standards on outline dimensions of transformers and inductors, a range of stack heights is specified which allows continuous variations of power ratings, although the square stack is preferred. The increment of the stack height follows the R10 series of preferred numbers as a multiple of the width of that limb of the lamination which carries the total magnetic flux. A suffix letter is used to designate the appropriate stack size as shown below:

Suffix Letter <i>z</i>	Multiple of Limb Width of Lamination
a	0.5
b	0.63
c	0.8
d	1
e	1.25
f	1.6
g	2

If a stack height other than the preferred square stack is used for the core, and one of the other specified stack size is chosen, the dimensions of the associated coil formers in the direction of the stack height will differ from these given in the following tables, which apply to square cores only.

In this case the values of dimensions *h* and *c* are obtained by increasing or decreasing the values in Tables 1 to 4 by the same amount as the stack height changes.

The lamination designation followed by the appropriate suffix letter shall be used to designate the coil former. If two larger parts of a lamination shape are used to form a core, this shall be indicated by the addition of the letter L to the designation.

All the listed dimensions in the specification are in mm.

4.2 Tolerances

The dimensions are indicated as maximum or minimum.

NOTE — The appropriate tolerance is shown in on the top of each column of dimensions in Table 1 to 4.

5 COIL FORMERS FOR CORES USING LAMINATIONS TYPE YE1-1

See Fig. 1 and Table 1.

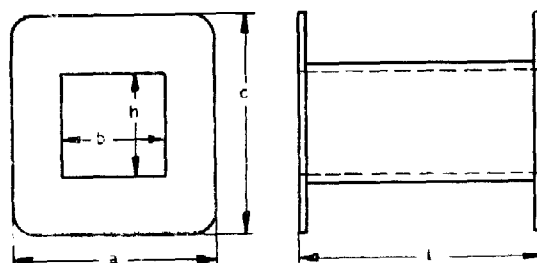


FIG. 1 COIL FORMER

**Table 1 Dimensions of Coil Formers
Type YEI 1 — Square Stack**
(*Clauses 4.1, 4.2 and 5*)

Coil Former Designation	<i>a</i> Max	<i>b</i> Min	<i>c</i> * Max	<i>h</i> Min	<i>l</i> Max
YEI 1-10d	19.5	10.5	24	10.6	14.5
YEI 1-13d	25.1	13.3	31	13.6	18.7
YEI 1-14d	27.2	14.5	34	14.8	20.5
YEI 1-16d	31.2	16.5	38	16.8	23.5
YEI 1-18d	35.2	18.5	53	18.8	26.5
YEI 1-20d	39.1	20.6	48	21	29
YEI 1-22d	43.1	22.6	53	23	32
YEI 1-25d	49.1	25.6	60	26.5	36.5
YEI 1-28d	55.1	28.6	67	29.5	41
YEI 1-32d	62.4	32.6	77	33.5	47
YEI 1-36d	70	36.8	86	37.7	53
YEI 1-40d	77.5	40.8	96	41.7	59
YEI 1-50d	97	51	120	52	73.5

*Corresponding to *C* Max from IS 11455 (Part 1/ Sec 1 to Sec 3) : 1985.

6 COIL FORMERS FOR COILS USING LAMINATIONS TYPE YEX-2

See Fig. 1 and Table 2.

**Table 2 Dimensions of Coil Former
Type YEX 2 — Square Stack (see Fig. 1)**
(*Clauses 4.1, 4.2 and 6*)

Coil Former Designation	<i>a</i> Max	<i>b</i> Min	<i>c</i> * Max	<i>h</i> Min	<i>l</i> Max
YEX 2-2d	5.5	2.5	7.8	2.5	5.3
YEX 2-3d	6.9	3.1	9.2	3.1	6.7
YEX 2-4d	8.7	3.9	11.1	3.9	8.5
YEX 2-5d	11.1	4.9	13.5	4.9	10.9
YEX 2-6d	13.9	6.1	16.4	6.1	13.4
YEX 2-8d	17.3	7.7	20.2	7.7	16.8
YEX 2-10d	22.2	9.8	25.0	9.8	21.8
YEX 2-12d	27.8	12.2	30.8	12.2	27.4
YEE 2-6dL	13.9	6.1	16.4	6.1	21.4
YEE 2-8dL	17.3	7.7	20.2	7.7	25.8
YEE 2-10dL	22.2	9.8	25.0	9.8	33.8
YEE 2-12dL	27.8	12.2	30.8	12.2	43.4

*Corresponding to *C* Max from IS 11455 (Part 2) : 1988.

7 COIL FORMERS FOR COILS USING LAMINATIONS TYPE YUI — 1

**Table 3 Dimensions of Coil Formers
Type YUI 1 — Square Stack (see Fig. 1)**
(*Clauses 4.1, 4.2 and 7*)

Coil Former Designation	<i>a</i> Max	<i>b</i> Min	<i>c</i> * Max	<i>h</i> Min	<i>l</i> Max
YUI 1-10d	19	10.6	23	10.5	29.5
YUI 1-13d	25	13.6	30	13.8	38.5
YUI 1-16d	31	16.6	37	17	47.5
YUI 1-20d	39	20.6	46	21	59
YUI 1-25d	49	25.6	58	26.5	74
YUI 1-30d	58	30.6	69	31.5	89
YUI 1-34d	66	34.8	78	36	100
YUI 1-38d	74	38.8	84	40	112
YUI 1-44d	85	44.8	97	46	130
YUI 1-50d	97	51	110	52	148
YUI 1-56d	109	57	123	58	166
YUI 1-60d	117	61.5	132	63	178
YUI 1-70d	137	71.5	154	73	208
YUI 1-80d	156	81.5	176	83	237

*Corresponding to *C* Max of Tables 2 and 3 of IS 11455 (Part 3) : 1988.

8 COILFORMERS FOR COILS USING LAMINATIONS TYPE YM-1

See Fig. 1 and Table 4.

**Table 4 Dimensions of Coil Formers
Type YM 1 — Square Stack (see Fig. 1)**
(*Clauses 4.1, 4.2 and 8*)

Coil Former Designation	<i>a</i> Max	<i>b</i> Min	<i>c</i> Max	<i>f</i> Min	<i>h</i> Max
YM 1-5d	12.5	5.5	16	3.5	12
YM 1-5ad	12.5	5.5	16	3.5	14
YM 1-7d	19	7.5	23	5.8	18.6
YM 1-7ad	17	7.5	23	5.8	18.6
YM 1-12d	29	12.6	34	8.1	28
YM 1-17d	37	17.6	43	9.6	35.5
YM 1-20d	44	20.6	51	11.6	42
YM 1-23d	50	23.6	58	13.1	48
YM 1-29d	54.6	29.6	64	12.4	52
YM 1-34d	65	34.6	77	15.1	64

ANNEX A
RELATED INDIAN STANDARDS
(Clause 2.1)

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
11455 (Part 1/ Sec 1) : 1985	Outline dimensions of transformers and inductors for use in telecommunication and electronic equipment : Part 1 Transformers and inductors using YEI-1 laminations, Section 1 Universal mounting	11794 (Part 2/ Sec 1) : 1986	Laminations for transformers and inductors for use in telecommunication and electronic equipment : Part 2 Preferred ranges of laminations, Section 1 lamination type YEI-1
11455 (Part 1/ Sec 2) : 1985	Outline dimensions of transformers and inductors for use in telecommunication and electronic equipment : Part 1 Transformers and inductors using YEI-1 laminations, Section 2 U-Clamp mounting	11794 (Part 2/ Sec 2) : 1986	Laminations for transformers and inductors for use in telecommunication and electronic equipment : Part 2 Preferred ranges of laminations, Section 2 Lamination type YEx-2
11455 (Part 1/ Sec 3) : 1985	Outline dimensions of transformers and inductors for use in telecommunication and electronic equipment : Part 1 Transformers and inductors using YEI-1 laminations, Section 3 Printed wiring board mounting	11794 (Part 2/ Sec 3) : 1986	Laminations for transformers and inductors for use in telecommunication and electronic equipment : Part 2 Preferred ranges of laminations, Section 3 Lamination type YED-2
11455 (Part 2) : 1988	Outline dimensions of transformers and inductors for use in telecommunication and electronic equipment : Part 2 Transformers and inductors using YEx- 2 laminations for printed wiring board mounting	11794 (Part 2/ Sec 4) : 1986	Laminations for transformers and inductors for use in telecommunication and electronic equipment : Part 2 Preferred ranges of laminations, Section 4 Lamination type YEx-3
14455 (Part 3) : 1988	Outline dimensions of transformers and inductors for use in telecommunication and electronic equipment : Part 3 Transformers and inductors using YUI-1 laminations	11794 (Part 2/ Sec 5) : 1986	Laminations for transformers and inductors for use in telecommunication and electronic equipment : Part 2 Preferred ranges of laminations, Section 5 Lamination type YEx-4
11455 (Part 4) : 1992	Outline dimensions of transformers and inductors for use in telecommunication and electronic equipment : Part 4 Transformers and inductors using Q series of C cores	11794 (Part 2/ Sec 6) : 1986	Laminations for transformers and inductors for use in telecommunication and electronic equipment : Part 2 Preferred ranges of laminations, Section 6 Lamination type YUI-1
11794 (Part 1) : 1986	Laminations for transformers and inductors for use in telecommunication and electronic equipments : Part 1 General requirements and tests	11794 (Part 2/ Sec 7) : 1986	Laminations for transformers and inductors for use in telecommunication and electronic equipment : Part 2 Preferred ranges of laminations, Section 7 Lamination type YM-1

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